

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

BEEETLES IN YOUR PINES?



**HOW GOOD CUTTING PRACTICES
AND MANAGEMENT STOP BEETLES
FROM KILLING YOUR TIMBER.**

by

**R. J. Kowal
and Harry Rossoll**



U. S. Department of Agriculture — Forest Service
Southeastern Forest Experiment Station
Asheville, North Carolina

May 1958

INTRODUCTION

Pine bark beetles, those tiny hard-shelled insects, kill millions of feet and thousands of cords of pine timber every year. Lots of things cause this killing. Fire, storms, lightning, dry weather, logging damage, improper cutting, over-crowded stands, and other conditions which effect the health of the tree or provide breeding material, favor beetle attack. You can't stop all tree killing by bark beetles, but you can prevent much of it. How? Handle your forest land right, thin your stands properly, avoid practices that favor beetle attack, and if beetles do come along, hit them as hard as you'd hit a wild fire.

Remember, beetles may be active year-round, so remove unhealthy, damaged, or over-crowded trees whenever you find them. Proper thinning and salvage of such timber are the best ways of avoiding beetle attack.

WHAT ARE BARK BEETLES?

The pine bark beetles that kill pines are black, hard-shelled, and $\frac{1}{8}$ to $\frac{1}{3}$ of an inch long.

IPS BEETLES



SOUTHERN PINE BEETLE



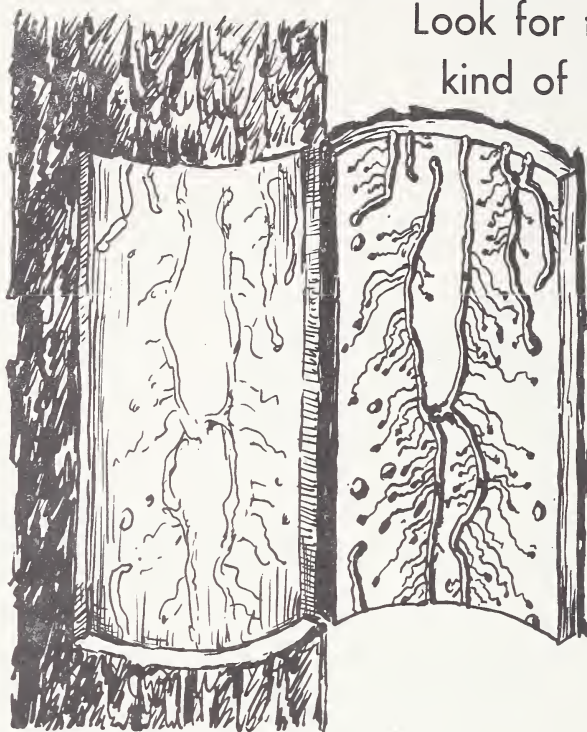
BLACK TURPENTINE BEETLE



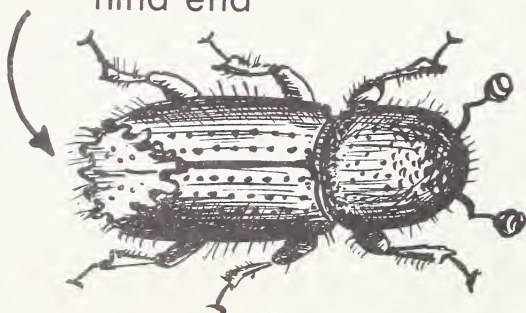
They all bore in through the bark of pine, tunnel between the bark and the wood, and lay eggs which hatch into tiny worms or grubs. A pitch mass, called pitch tube, usually forms at the point where the beetle bores into the bark. The grubs feed between bark and wood for a while and eventually develop into a new crop of beetles. These bore out of the bark and fly to trees and breeding material. Exit holes of southern pine beetles and Ips give the bark a "shot hole" appearance.

IPS BEETLES

Look for this
kind of tunnel



Scooped out
hind end



Actual
size



The Ips beetles are the most common of the pine bark beetles. They are distributed over the whole South and can be found wherever pine is damaged or otherwise disturbed. In the forest they usually kill trees in groups of 2 or 3. All in all they probably kill more timber than the other bark beetles combined. There are three different kinds of Ips beetles.

The smallest is about $\frac{1}{8}$ -inch long; the largest about $\frac{1}{4}$ -inch. They look and act pretty much alike. You can tell them from the southern pine beetle and black turpentine beetle by the scooped-out hind end. The pitch tube on the tree trunk is about the size of the tip of your little finger and reddish-white in color. But the best way to tell Ips from other bark beetle work is by the tunnels under the bark. An Ips tunnel runs up and down the tree and is roughly shaped like a Y or H. The grubs hatching from eggs laid by the Ips beetle make many tunnels which start out at right angles to the beetle tunnel.

Ips beetles are active during spring, summer, and fall, and during warm spells in winter. They are capable of breeding in large numbers, producing a new brood about every 4 to 6 weeks during the summer. In the summer, when conditions are most favorable for beetle activity, every tree attacked and killed provides breeding material for enough beetles to attack at least five more trees. Usually beetles are not numerous until late summer and fall. Then tree kill is the worst. But if the winter has been warm and dry, considerable tree killing may occur by late spring and by fall the damage may be very severe.

These beetles usually attack the entire tree, including the limbs, though one species, a small one about the size of the southern pine beetle, usually attacks the crown and kills part or all of it.

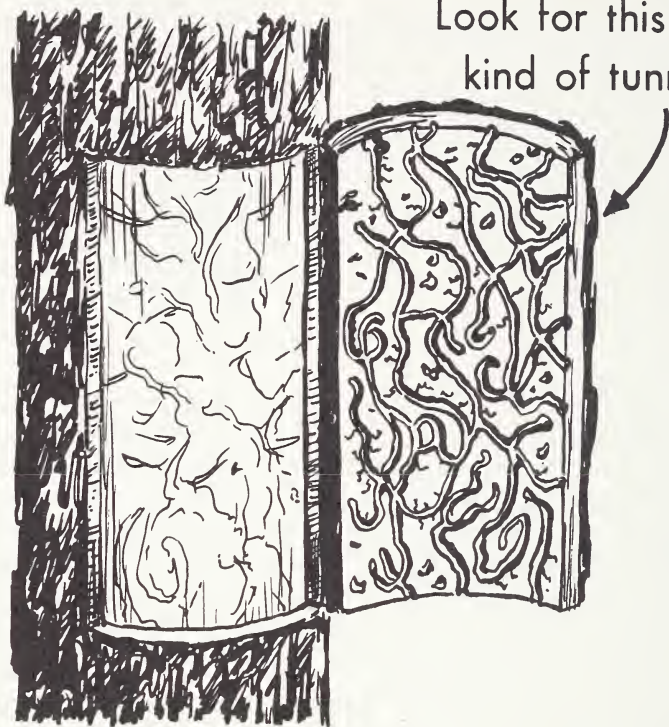


**Look for pitch tubes
reddish-white in color.**



SOUTHERN PINE BEETLE

Look for this
kind of tunnel



Hind end round not
scooped out as in Ips



Actual
size

$\frac{3}{16}$ " 

The southern pine beetle is less common than Ips. It becomes a serious pest mainly during long dry spells and then usually in scattered parts of the South. However, once it starts it spreads very rapidly and kills large areas of timber in a very short time.

Cuttings, storms, fire, and lightning seldom cause outbreaks of this beetle as they do with Ips. Outbreaks seem to start in unthinned stands of pine, especially during long dry spells. In recent years it has killed large amounts of timber in the Southern Appalachian mountains, northern Alabama, southwest Mississippi, and eastern Texas.

The southern pine beetle is dull brown to black in color, about 3/16-inch long and its hind end is rounded, not "scooped" as in Ips. Usually southern pine beetles start attacking in the middle or upper part of the tree trunk, then attack in the lower part. Their pitch tubes are a bit smaller than Ips and usually whitish in color. They tunnel between the bark and wood, winding around in an S shape; the tunnels made by the grubs are very tiny and short because the **young grub bores outward, into the bark, soon after hatching**. A new brood is produced about every 6 weeks.

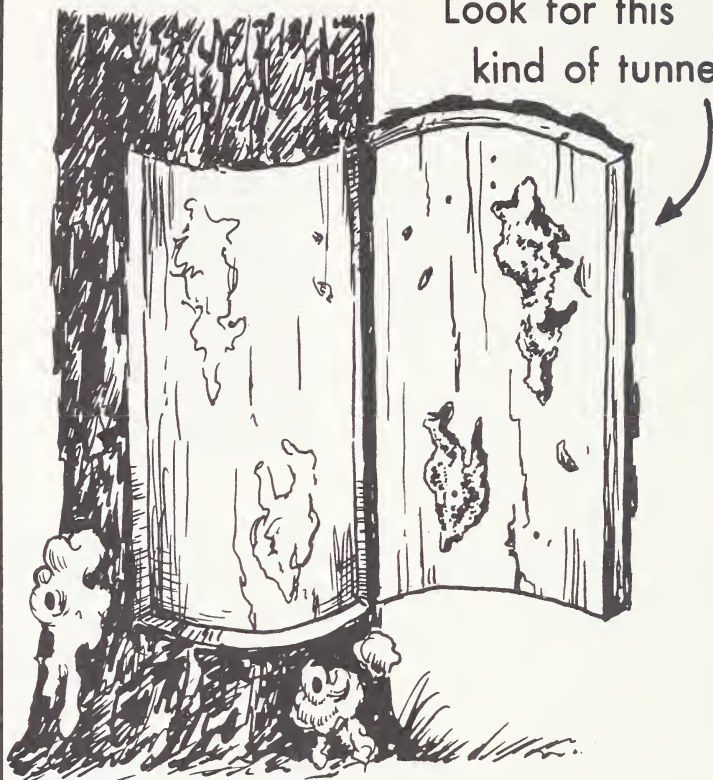
Like Ips, the southern pine beetle is most active whenever the weather is warm. However, when summer comes, it increases in numbers and spreads very rapidly—usually much more rapidly than Ips—and kills large patches of timber. All ages and all sizes of trees are attacked.



Look for pitch tubes.
Tubes are usually smaller
than Ips — whitish in
color.

BLACK TURPENTINE BEETLE

Look for this
kind of tunnel



This beetle is larger than
Ips or Southern pine beetle



Actual
size

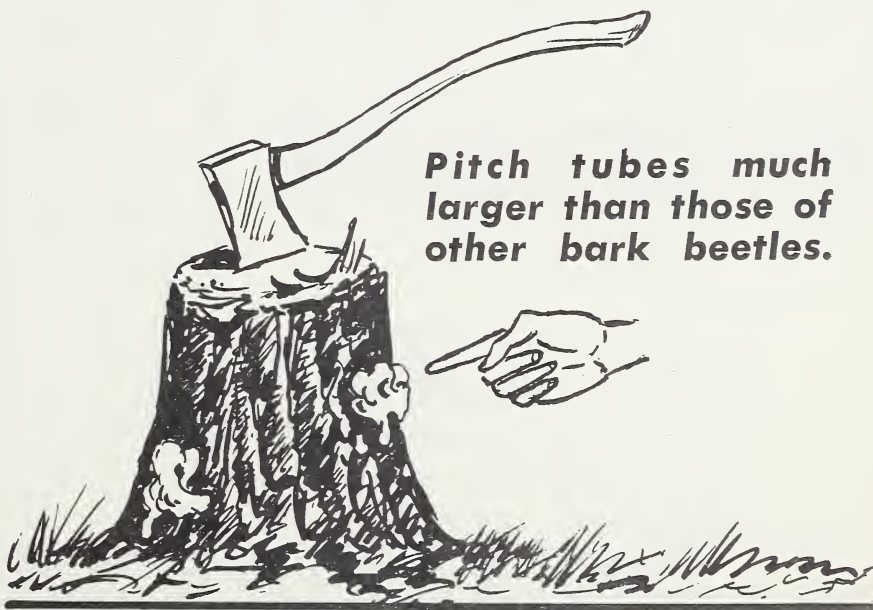
$\frac{1}{3}$ "



This beetle has been killing many large, vigorous pines throughout the South for the past 10 years. It is especially common in the lower South, killing after cutting operations (particularly in low, poorly drained sites) and turpented trees.

The beetle is quite different from the other bark beetles in a number of ways. They kill more slowly than other bark beetles, and breed in both trees and stumps. Only a few beetles attack each tree. **But they can increase in number, attack, and kill trees almost without being noticed until a large number of trees are affected.** However, if beetle activity is spotted early, further attack can be prevented and attacked trees can be saved.

The black turpentine beetle is a large, heavy-bodied bark beetle about $\frac{1}{3}$ -inch long. This beetle attacks only at the base of a tree, usually below 6 feet, though some attacks may occur up to 10 feet. Its pitch tube is large, usually as large as the end of a man's thumb. The beetle cuts a wide tunnel between the bark and the wood and lays a cluster of eggs there. The eggs hatch into whitish grubs which feed together, chewing out large patches under the bark. It takes about 4 months for a new brood of turpentine beetles to develop.



PREVENTING

BARK

BEEBLE

ATTACK

Most tree killing by bark beetles can be prevented by good management of timber stands. But sometimes, no matter what you do, the beetles will attack and you then have the job of controlling them and keeping losses as low as possible.

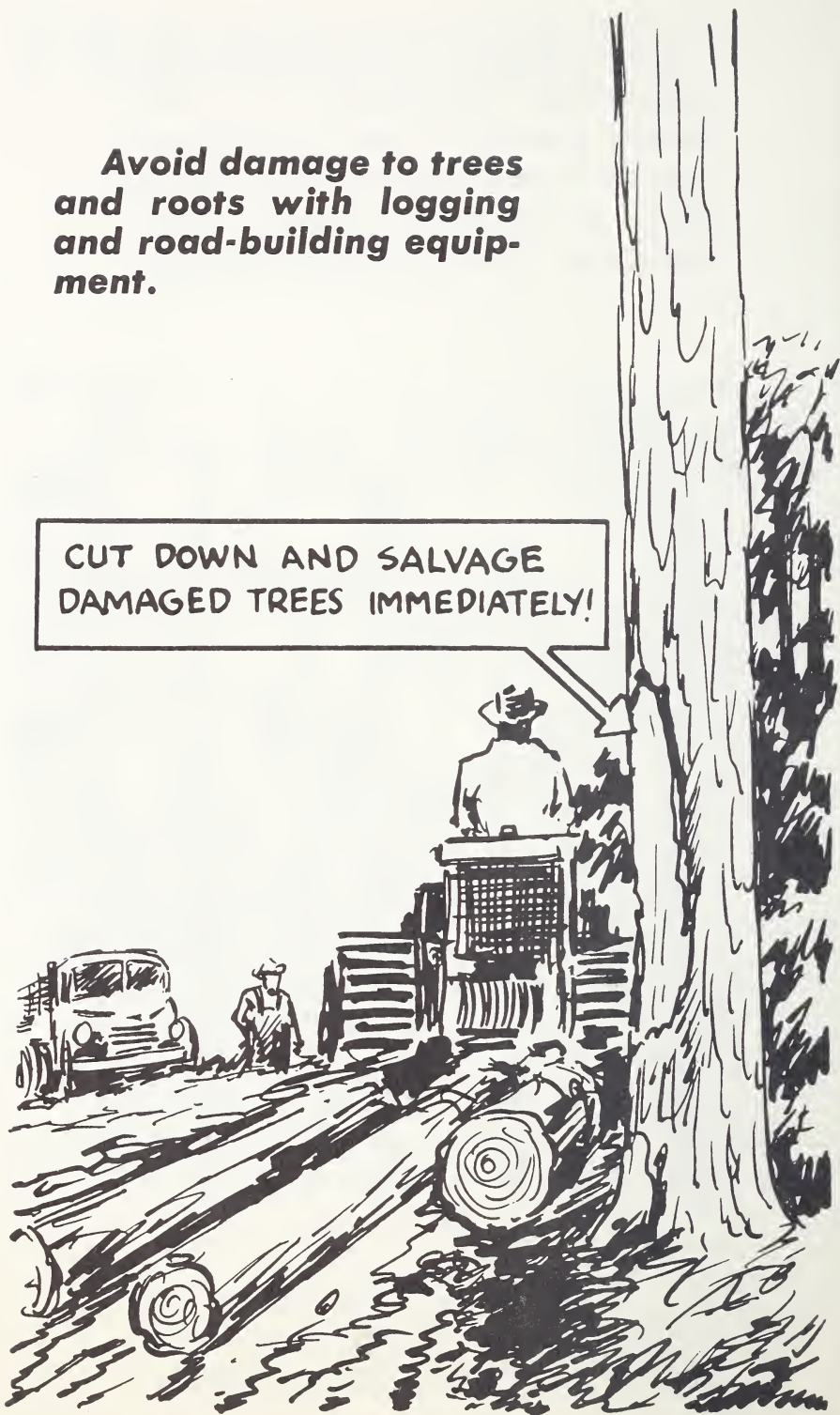
How do you manage a stand to prevent beetle killing? Here are some ways to do it:



Keep your stands thinned: keep down hardwood and brush competition; remove old, unhealthy and crowded trees. This is especially important during long dry spells.

**Avoid damage to trees
and roots with logging
and road-building equip-
ment.**

**CUT DOWN AND SALVAGE
DAMAGED TREES IMMEDIATELY!**



Move logs and pulpwood out of the woods as soon as possible, within two weeks during the warmer months.



Use large tops for pulpwood following sawtimber cuts. If you can't, then burn them or lop them into small pieces and scatter them in the open to dry. Large accumulations of heavy slash are especially hazardous during dry summer months.



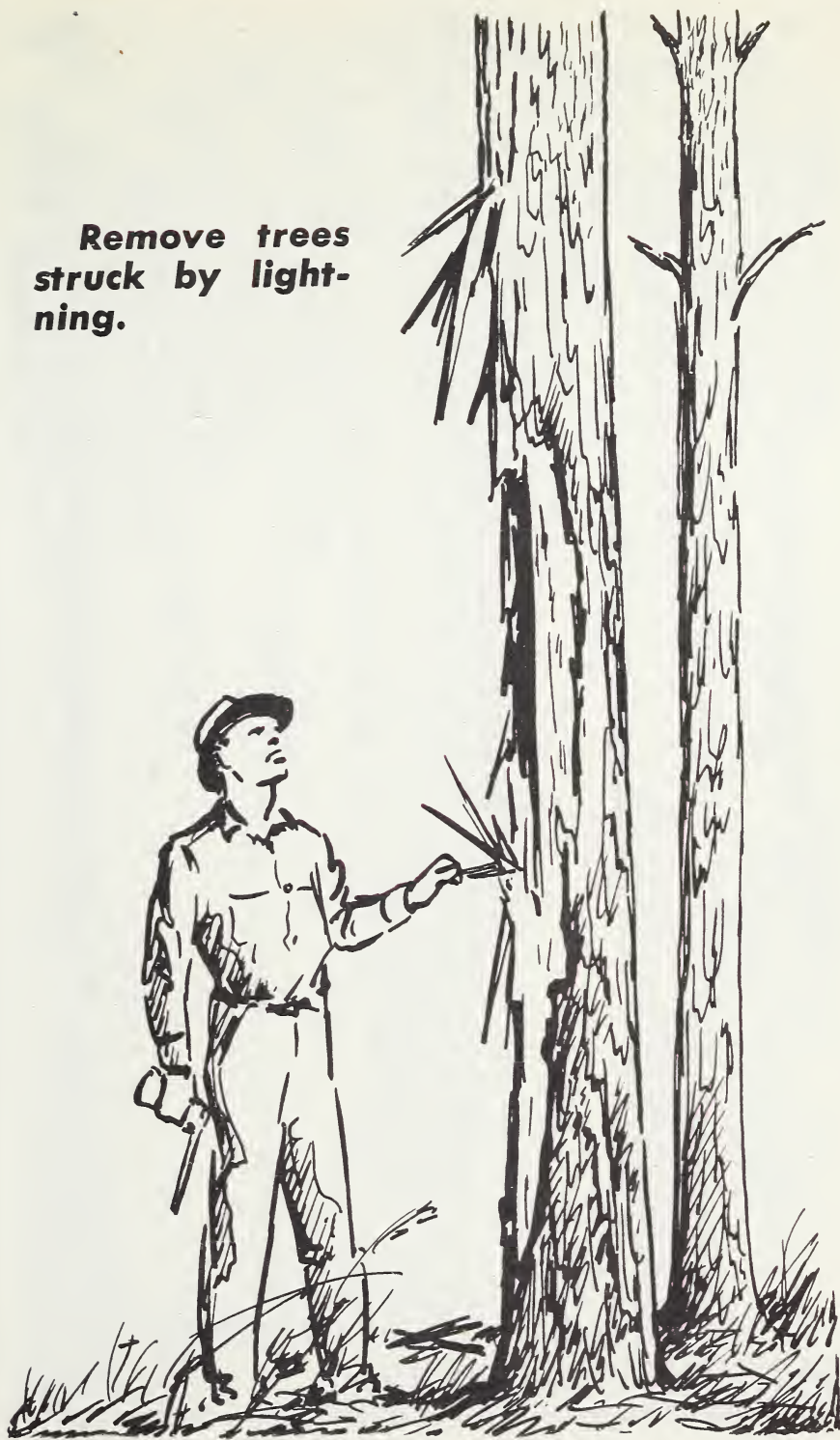
Spray with BHC any felled trees, logs, pulpwood, tops, and other breeding material which cannot be removed promptly. Wood which is to be moved later will be preserved for several months by BHC.



Salvage storm-damaged trees promptly.



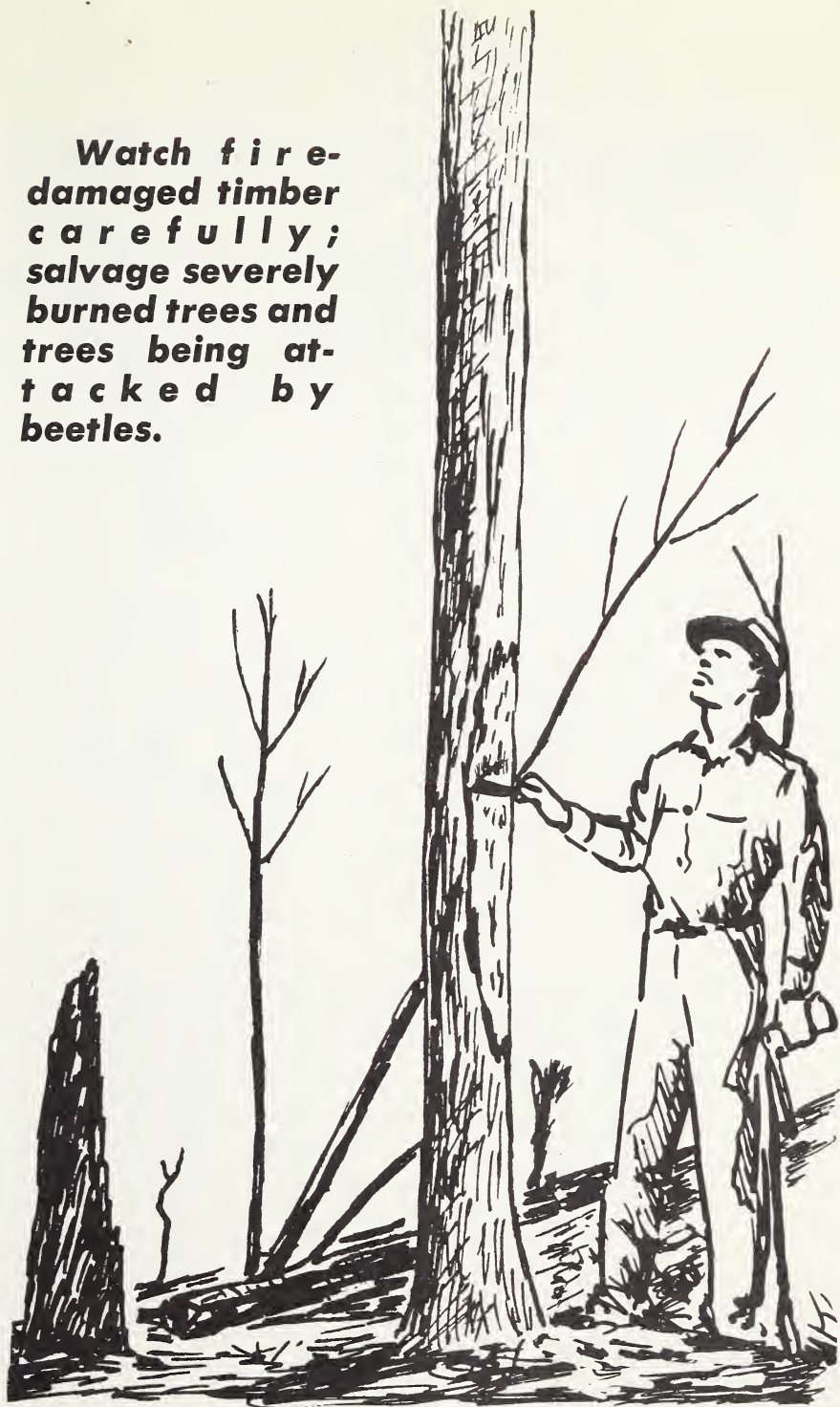
**Remove trees
struck by light-
ning.**



Remove worked-out turpentine trees.



Watch fire-damaged timber carefully; salvage severely burned trees and trees being attacked by beetles.



Check stumps for turpentine beetle attack about two months after cutting, storm, fire, salvage, etc. If attack is heavy and general, check nearby standing trees every month or two, or spray stumps with BHC.



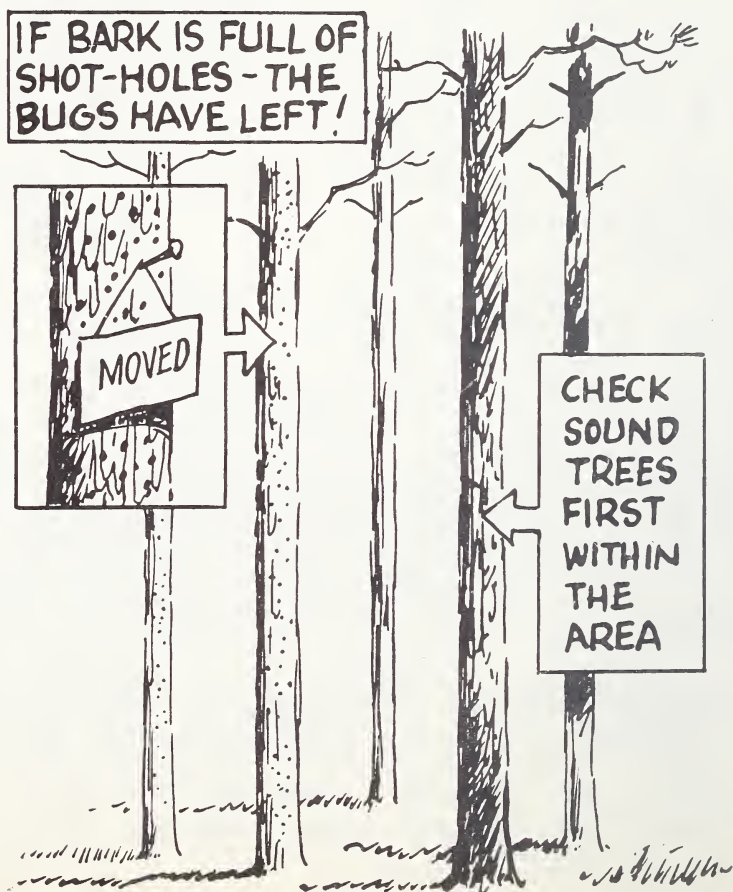
Areas which have been cut, burned, storm-damaged, etc., should be checked for all bark beetles every 2 months. If beetles are found, take prompt action to stop them.

A COUPLE OF MONTHS HAVE PASSED-
LET'S CHECK THIS AREA FOR BEETLES!



CONTROLLING BARK BEETLE ATTACKS

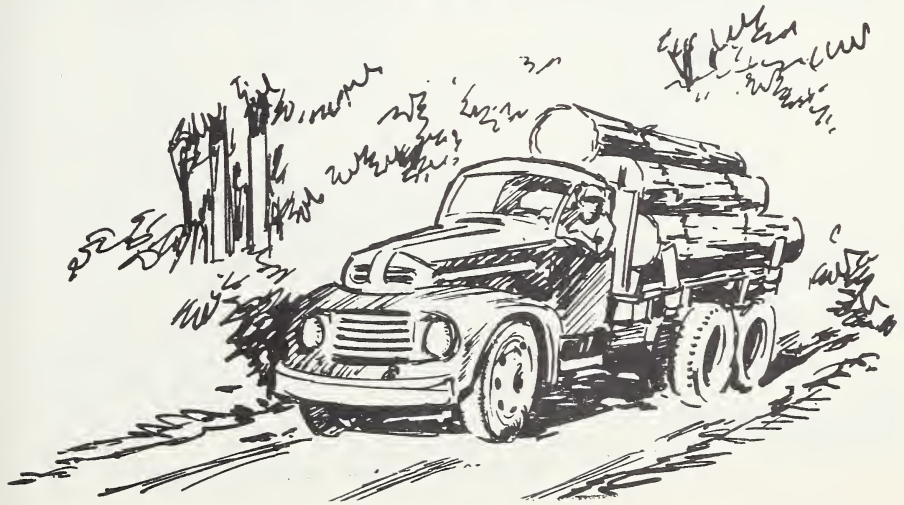
If beetles start killing your trees, your job is to get rid of them fast and stop further killing! Here are the best things to do:



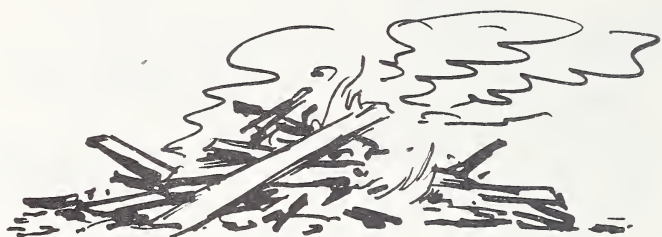
1. **Fell the trees that contain beetles. These are usually the trees with fading yellow tops.**



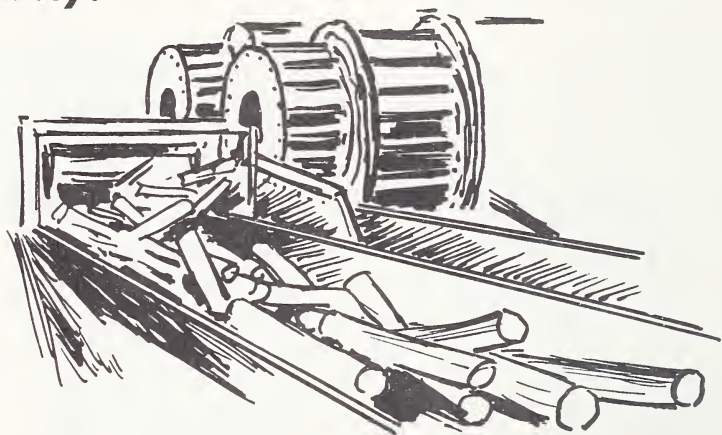
2. **Rush logs and pulpwood to mills.**



3. Slabs must be burned.



4. Pulpwood must be processed immediately.



5. If you can't salvage, then burn the trees or peel and burn the bark or spray with BHC.



6. You can save trees lightly attacked by the black turpentine beetle. Naval stores trees, seed trees, or other high value trees can be saved by spraying with BHC. In a general attack, spraying may be too expensive; check the trees periodically, salvage the badly attacked ones, and spray the infested stumps.



SPRAYING

WITH

BHC

(Benzene hexachloride)

BHC kills by immediate contact, fumigation, and “residual” contact. So you can kill the bugs in and under the bark and kill those which try to attack a tree. When you spray unattacked or lightly attacked logs or pulpwood, they will remain sound and clean for several months.

Buying BHC — Contact an agricultural supply store, a chemical supply house, or manufacturer and ask for BHC oil or emulsion concentrate containing 1 lb. of gamma isomer per gallon (11½ percent).

Preparing BHC Spray — Just add No. 2 fuel oil or diesel oil to the concentrate and stir. Here is the amount you add for different beetles:

Ips — 50 gallons oil — 1 gallon concentrate

Southern Pine Beetle

Summer — 50 gallons oil — 1 gallon concentrate

Winter — 50 gallons oil — 2 gallons concentrate

Black Turpentine Beetle — 14 gallons oil — 1 gallon concentrate

Spraying BHC — Soak the bark with a coarse spray; use a common 3-gallon garden sprayer or a 5-gallon back-pack sprayer. Don't "mist" it on. Don't spray soon after rain. When treating green trees to control the black turpentine beetle, spray as high as the highest pitch tube.

Be sure to follow the manufacturers' safety advice.



GETTING HELP ON CONTROLLING BARK BEETLES AND OTHER BUGS

You can get help in preventing and controlling bark beetles and other forest insects by calling on your:

County Agent and Extension Service

State Forest Service

Forest Industry Conservation Foresters

Consulting Forester

U. S. Forest Service Experiment Station

NOTES

NOTES

NOTES

Agriculture--Asheville

